Food Research & Action Center

Connecting Patients to SNAP and WIC in Health Care Settings

Efforts by health care providers to address food insecurity continue to grow. Across the U.S., health care providers are screening millions of patients for food insecurity, in part spurred by several large-scale national quality and standards-setting initiatives requiring screenings for health-related social needs (HRSN), including food insecurity. For example, given new Centers for Medicare & Medicaid Services (CMS) requirements, hospitals will be required to screen patients for food insecurity and refer patients to appropriate resources to improve patient well-being and prevent readmission related to a social determinant of health.

Many health care providers are intervening to address food insecurity by connecting patients to the Supplemental Nutrition Assistance Program (SNAP), Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), school meals, and other federal nutrition programs, which are enormously well-studied with documented benefits to health, nutrition, and well-being and should serve as the foundational intervention to address food insecurity.

This research brief:

- underscores the importance of connecting patients to SNAP, WIC, and other federal nutrition programs as the foundational intervention to address food insecurity in health care settings
- provides key steps that health care providers can take to patients to federal nutrition programs
- synthesizes research on food insecurity interventions in health care settings that featured connecting patients to SNAP and WIC

Referring Patients to the Federal Nutrition Programs Is Critical

Ensuring eligible patients are accessing the federal nutrition programs should be the primary intervention for health care systems to address food insecurity and improve patient nutrition and health. The federal nutrition programs include SNAP, WIC, afterschool and summer meal programs, child care meals, school breakfast and lunch, and congregate and home-delivered meals for older adults. These federal nutrition programs are available nationwide, come with billions of dollars in federal funding, and have reams of research attesting to their efficacy in improving nutrition, health, and

well-being of participants.[1] Connecting patients to federal nutrition programs such as SNAP and WIC would also result in an overall decrease in health care costs and readmissions, and provide better quality of life for patients.[2]

Using health care settings to connect patients to SNAP and WIC has become a national priority. The efficacy of these efforts is highlighted in the American Academy of Pediatrics 2015 "Promoting Food Security for All Children" policy statement (reaffirmed in 2021) that extolls the importance of connecting children and their families to SNAP, WIC, school meals, and other federal nutrition programs. Additionally, the 2022 White House National Strategy on Hunger, Nutrition, and Health encourages the health care sector to "screen for food insecurity and connect people to the services they need," including SNAP and WIC. Most recently, the White House released the first ever U.S. Playbook to Address Social Determinants of Health, which underscores the importance of SNAP and WIC in improving food security and includes commitments from CMS and the U.S. Department of Agriculture (USDA) to use data to bolster enrollment of Medicaid participants in food assistance programs, such as WIC, SNAP, and free and reduced-price school meals.

WIC is the ultimate fruit and veggie prescription program. The WIC food package makes permanent increases for fresh and vegetables benefits for millions of eligible WIC participants across the U.S. Children's benefits for fruits and vegetables are $25 per month (up from $9) and pregnant and postpartum participants rise to $44–$49 per month (up from $12).

Federal Nutrition Programs Improve Food Security and Health Outcomes

An ever-growing body of research underscores how participation in the federal nutrition programs — such as SNAP, WIC, and the school meals programs — is a winning strategy to improve nutrition and health.

SNAP: As the largest federal nutrition program, SNAP has a profound impact on population-level economic, nutrition, and health outcomes — particularly when its benefit levels are adequate for purchasing healthy foods. Enrollment in SNAP is linked to improved health outcomes, better medication adherence, and lower risk of heart disease and obesity. In addition, SNAP is linked to better access to preventive health care and reduced health care. [3] Findings from a study of more than 60,000 older adults with low incomes show that one year after participants started receiving SNAP, their likelihood of entering a nursing home or being hospitalized is 23 percent and 4 percent less.[4,5]

WIC: Established in 1972 as a medically tailored public nutrition intervention for at-risk mothers and children, WIC is the original food as medicine program.

WIC is proven[6] to prevent obesity[7] and improve food security, dietary intake,[8] birth[9,10] and health outcomes, and economic stability. The longer children participate in WIC, the healthier their diets.[11] Extensive research suggests that WIC contributes to better birth outcomes and healthier babies.[12] In fact, a study conducted in 2019 by Nianogo, et. al., showed that participation in WIC resulted in cost-savings, including both cost-savings pertaining to WIC intervention costs as well as cost-savings due to tangible and intangible costs associated with pre-term birth.[13]

School meals: The National School Lunch Program — the nation's second largest food and nutrition assistance program — makes it possible for school children in the U.S. to receive a nutritious lunch every school day. Millions of children also benefit from school breakfast each day. Children of families at low- or moderate-income levels can qualify for free or reduced-price school meals. Meals must meet federal nutrition standards, which require schools to serve more whole grains, fruits, and vegetables. Participation in school meals has favorable impacts on a number of outcomes, including food security, dietary intake, obesity, and health status. Research has demonstrated that school meals are the healthiest meals that many school children eat throughout the day.[14] Research shows that students who participate in the school meals programs consume more whole grains, milk, fruits, and vegetables, during mealtimes and have better overall diet quality than nonparticipants.[15]

Steps Health Care Providers Can Take

Health care providers, bolstered by anti-hunger collaborators, can ensure patients are accessing SNAP, WIC, and other federal nutrition programs by:

1) **Utilizing a range of strategies and resource**: Health care providers can benefit from different strategies and resources geared to their practice including those elevated in Screen and Intervene: A Toolkit for Pediatricians to Address Food Insecurity as well as an online course, Screen & Intervene: Addressing Food Insecurity Among Older Adults. In addition, many national, state, and local anti-hunger organizations can provide targeted training, state-specific-resources, and technical assistance on connecting patients to federal nutrition programs, including SNAP and WIC.

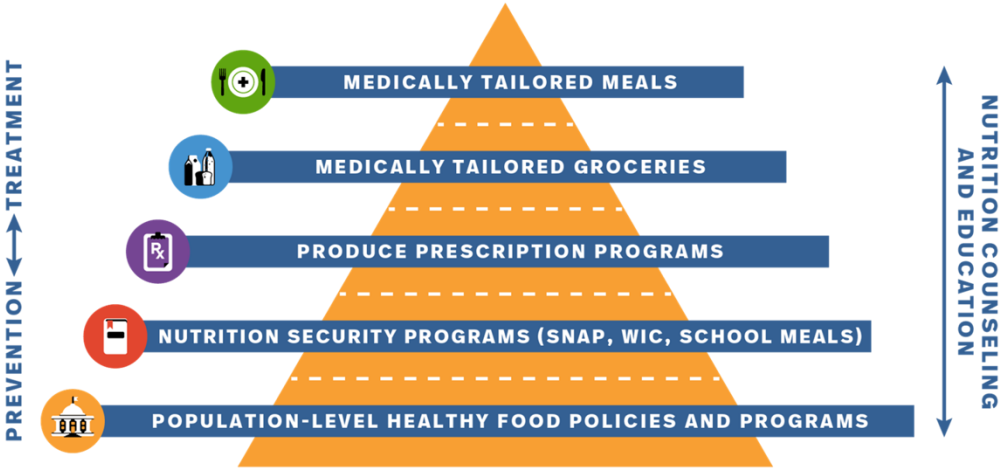
   Health care providers use various approaches to connect patients to SNAP and WIC. Marchis, Fitchenberg, and Gottlieb in 2020, divided food referrals in two categories.

Food Referrals

• **Passive referrals:** Health care providers give patients information about food resources, including information on SNAP, WIC, other federal nutrition programs, and additional resources such as food pantries. In some cases, handouts may include more detailed, often localized, information on how to access SNAP or WIC from pertinent agencies. Health care providers may also use texting to promote opportunities to connect patients to SNAP and WIC.

• **Active referrals:** Health care providers connect patients with programs either through on-site assistance or through referral partnerships. Through on-site assistance, patients are referred to full- or part-time on-site case managers, patient navigators, community health workers, resource coordinators, or social workers, who assist them in applying for SNAP or WIC. Through referral partnerships, health care providers can collaborate with state or local community-based organizations or agencies. Examples include creating a process where patients who are interested in being connected to SNAP and WIC consent to a partner organization reaching out to them, hosting a partner organization or agency at the health provider site who provides patients with assistance with applying for SNAP or WIC, and/or developing a formal Memorandum of Understanding (MOU) with partners to provide SNAP and WIC application assistance.

2) **Ensuring that Food as Medicine (FAM) efforts include work to connect patients to federal nutrition programs:** Health care providers can leverage the growing efforts around Food as Medicine as one opportunity to connect patients to the federal nutrition programs. The Department of Health and Human Services considers Food as Medicine to include "approaches that focus on integrating consistent access to diet- and nutrition-related resources" as a critical component.[16] Connecting patients to the federal nutrition programs fits within this approach and constitutes an important primary intervention as indicated in the Food Is Medicine infographic below.



Source: *A Food is Medicine approach to achieve nutrition security and improve health*[17]

As states continue to be approved for Section 1115 waivers for medically tailored meals, groceries, and other nutrition interventions, these services should supplement, not supplant, existing federal, state, and local nutrition supports. State Medicaid agencies should partner with other state agencies and social service providers to ensure beneficiaries experiencing food insecurity are connected to programs like SNAP and WIC. Medicaid also needs to explain how it will track and improve upon enrollment in SNAP and WIC.

3) **Building the research base on promising models used by health care providers to connect patients to SNAP and WIC**: Research continues to grow and evolve on increased awareness of patients' health-related social needs — including food insecurity — and the efficacy of the health care sector addressing these needs. Yet, while many health care providers are connecting patients to SNAP and WIC, the published literature that looks at health care providers connecting patients to SNAP and WIC is limited.

Review of Research on Promising Practices to Connect Patients to the Federal Nutrition Programs

Brief Methodology of Research

- The research shared in this brief was collected from October 2023 through January 2024. Some keywords used during the search were: "connecting patients", "healthcare setting", "SNAP" and or "WIC", "referrals", and "food insecurity intervention". Articles were reviewed for these keywords. The timeframe of articles reviewed was from 2013 to 2023.
- This research brief highlights health care organizations that intervened to address food insecurity by referring patients to SNAP and WIC, whether through a passive or active referral (see definitions outlined previously in this brief). We categorized studies as using an active referral if the primary intervention was focused on referring a patient to federal nutrition program (e.g., through a patient navigator, social workers, or a community-based organization) where the patient would be contacted or assisted with enrollment. For active referrals, we assumed (due to lack of sufficient details to conclude) that if a referral was sent to an outside agency/organization, patients were contacted by the organization the referral was sent to. We categorized studies as using a passive referral if the patient was left with information on resources and how to contact the organization themselves. In addition, we categorized a study as both active and passive if the study featured both an active and passive approach to connecting patients to SNAP, WIC, and/or the federal nutrition programs.

Results

- The 19 studies reviewed were categorized as either passive and active referrals (shown in Table 1 and Appendix I). Five studies used the passive approach, and 12 studies used the active approach. In addition, two studies used both passive and active approaches, and one study was unclear due to lack of specific detail on processes used (Table 1).
- Among the seven combined studies that used the passive approach, four of the studies shared resources with the patient through a handout or flyer with a list of resources, which listed SNAP or WIC as one of the resources. [18,19,20,21] One was a text message with information on SNAP.[22]
- Of the 14 studies that used an active approach, 10 studies shared that they used a referral of some sort (i.e. EMR, referral tracking system, food bank, local resources, and/or programs). [23,24,25,26,27,28,29,30,31,32] Several studies included on-site assistance where the health care organization assisted the patient with applying for SNAP and/or WIC.[33,34,35,36,37]
- One study used a passive referral (cards with resource information) and an active referral (one of their sites provided on-site SNAP application assistance).[38]
- One study was a landscape assessment and included 22 health care entities that included both active and passive approaches.[39]

Successful Models of Connecting Patients to SNAP/WIC

- The 19 identified studies reported heterogenous outcomes and often did not report the success of their processes. Thus, rather than summarize the effect of the referrals across studies, we highlight examples of three successful active referral models for SNAP described in the literature and the results from those studies. A few case studies from the literature review provide good examples of food insecurity interventions in a health care setting that used active referral processes to connect patients to SNAP and/or WIC.

    - **Health Leads Program Within Primary Care Network in the Boston Metropolitan Area:** The goal of this program was to see if assisting patients with social needs, such as housing, food, and transportation, would improve clinical outcomes such as blood pressure, cholesterol, and hemoglobin A1c. Of the 5,125 patients screened, 1,021 enrolled in the Health Leads program. The Health Leads program included screening for unmet resource needs and then assignment to an "advocate" (an undergraduate student volunteer supervised by program staff) who then worked with a patient to get access to resources and benefits to meet their needs. The most common reported needs were medication affordability, utilities, and food. SNAP and WIC were given as examples of resources that advocates would assist patients with until they

receive their benefits. Results showed modest improvements in blood pressure and lipids, but not in blood glucose levels.[40]

- **WIC Enrollment in the Primary Care Setting:** The purpose of this study was to implement an intervention in the primary care setting that will help increase WIC enrollment. The primary aim was to increase enrollment by 10 percent and the secondary aim was to assess the influencing factors on WIC participation. The study sample included all patients less than 5 years of age who were there for a well-child visit. The clinic had already been screening for social drivers of health, but not for WIC enrollment. If a patient was a WIC-interested, non-participant, providers were instructed to: provide education on WIC services and enrollment, give the patient a resource pamphlet, and refer the patient (during the same visit) to a bilingual food resource specialist (who provided WIC education). The clinic used Electronic Health Records (EHR), with patient consent, to refer patients who were eligible for WIC, but not participating. The clinic measured, monthly, the count of new WIC enrollments. New enrollments increased by 42.5 percent (monthly mean of 24.7 to 35.2). A total of 190 WIC non-participating families completed the survey on barriers to participation. The three most common barriers to participating in WIC are (1) "access problems", (2) "WIC knowledge gap", and (3) "don't need WIC".[41]

- **Hospital and Community-Based Organization (CBO) Partnership:** The hospital partnered with Hunger Free Colorado, an anti-hunger nonprofit organization that connects people to federal nutrition programs and other food resources. Through the hospital's electronic medical record, referrals were generated for patients 0–18 years of age who screened positive for food insecurity in the emergency department, inpatient, or outpatient setting. Hunger Free Colorado was faxed a referral form with information to contact the patient. Hunger Free Colorado staff helped families determine their eligibility and apply for the federal food programs (i.e., SNAP, WIC), as well as provided information for emergency food resources (food pantries, etc.). Sixty people were already enrolled in SNAP and 11 had applications pending at the time of contact. Of the 227 that were connected to a supplemental food resource, 26 were connected to SNAP; 168 were referred to a community resource; and 33 people were connected to both SNAP and a community resource.[42]

Table 1. Research Studies That Include SNAP/WIC Enrollment in Food Insecurity Intervention: Type of Referral Used		
Author	**Type of Referral**	**Detailed Methods**
Morales et. al., 2016[43]	Active	Active: SNAP/WIC application assistance
Smith et. al., 2016 [44]	Active	Active: Pilot program include onsite SNAP application (monthly)
Bottina, Rhodes, Kreatsoulas, Cox, & Fleeger, 2017 [45]	Passive	Passive: Referral Menu: Find food pantry Getting hot meals Applying for SNAP Applying for WIC
Berkowitz, Hulberg, Standish, Reznor, & Atlas, 2018 [46]	Active	Active: On-site SNAP application assistance
Martel, Klein, Hager, & Cutts, 2017 [47]	Active	Active: Referral to foodbank who then contacts patient with federal nutrition programs (i.e. SNAP, WIC, etc.)
Lundeen et. al., 2017 [48]	Active and Passive	Passive: Food resource list (including SNAP/WIC) Or Active: On-site assistance with federal benefits, i.e., SNAP/WIC application
Smith, Malinak, Chang,Schultz, & Brownell, 2017 [49]	Active	Active: Onsite CalFresh (SNAP) referral Passive: Food pantry and CalFresh handout (for sites with no onsite assistance)
Palakshappa, et. al., 2017 [50]	Active	Active: Referral through EHR to community partner who assisted with applying for SNAP
Chan & Rosenblum, 2018 [51] (*Poster session)	Passive	Passive: referral handout on SNAP/WIC
Marpadga et. al., 2019 [52]	Passive	Passive: Resources- given information on SNAP, etc.
Hickey, Phan, Beck, Burkhardt, & Klein, 2020 [53]	Active	Active: Referral to social work

Okafor, Sarah Chiu, & Feinn, 2020 [54]	Active and Passive	Passive: Resource provided on how to obtain food and supplemental nutrition (including information on SNAP, WIC, summer meals) Active: one site provided onsite SNAP application assistance
Fritz et. al., 2020 [55]	Active	Active: EHR referral to Hunger Free Colorado
Kaiser Permanente; Center for Law and Policy Innovation of Harvard Law School, 2021[56] (*not a research study)	Passive	Passive: Text message regarding SNAP
Blitstein et. al, 2021 [57]	Active	Active: SNAP application assistance
Carpenter, Kuchera, & Krall, 2022 [58]	Active	Active: SNAP application assistance
Kelly, Maytag, Allen, & Ross, 2022 [59]	Active	Active: Referral to SNAP; Onsite assistance
Hanna, et. al., 2022 [60]	Passive	Passive: Resource information such as SNAP, WIC
Monore et. al., 2023 [61]	Active	Active: Referral through EHR to WIC

For more details on each of these research studies, see Appendix 1.

Highlighting Limitations and Future Study Recommendations

Too few of the published studies provide needed insights as to how health care providers are creating sustainable systems to connect patients to SNAP and WIC. Given the vital role of SNAP and WIC to patient health, it is important to understand how health care organizations can sustainably provide screening and active referrals (whether on-site or provided by another organization) to federal nutrition programs (i.e., SNAP, WIC). Future research is needed to improve the efficiency and cost-effectiveness of active referral systems, as well as continuing to move toward broader systems improvements such as seamlessly connecting people to Medicaid, SNAP, and WIC through fully integrated applications.

Additionally, there are still significant limitations in understanding the full scope of patients who may be at risk of food insecurity as well as those who could benefit from referrals to food assistance programs. Many studies highlight the stigma and social vulnerability associated with sharing food insecurity and other social needs with health care providers. Studies also suggest that families may underreport social problems.[62,63,64] In addition, the screened population may not be representative of the overall population because universal screening is not always implemented in health care. More qualitative surveys would be beneficial to understand families and their

experience with food insecurity and how best to connect them with supplemental resources.[65]

More research is needed to assess individual knowledge, attitudes, and beliefs around screening for food insecurity[66] and around SNAP and other food benefit programs.[67,68] Specifically for WIC, research is needed on effective strategies to improve the retention of children over 1 year old.[69] Future work should focus on the need to understand how to increase the rate at which those who are reporting food insecurity are being linked to resources.[70]

Conclusion

A significant body of evidence suggests that enrollment in SNAP and WIC improves health, helps manage chronic disease, and reduces health cost and utilization. Likewise, participation in school meals has favorable impacts on many outcomes, including food security, dietary intake, obesity, and health status. As screening for food insecurity continues to proliferate, it is imperative that health care providers are educated on the importance of SNAP, WIC, and other federal nutrition programs as primary interventions to improve health outcomes and on which methods to connect patients to these programs are most effective.

Health care providers can play a key role in closing participation gaps in access to SNAP, WIC, school meals, and other nutrition programs. Planning is needed to determine whether health care providers have capacity for a passive referral or an active navigation model, with the goal of eventually establishing a sustainable, effective process that is integrated with their electronic health system. Future research should build out evidence-based best practices to connect patients to SNAP and WIC that health care providers can tailor to their circumstances and integrate in their standard practice for screening and intervening.

Building sustainable health care systems to ensure every eligible patient is connected to SNAP, WIC, school meals, and other federal nutrition programs is a winning intervention to address food insecurity and improve health.

About FRAC: The Food Research & Action Center improves the nutrition, health, and well-being of people struggling against poverty-related hunger in the United States through advocacy, partnerships, and by advancing bold and equitable policy solutions. For more information about FRAC, or to sign up for FRAC's e-newsletters, go to www.frac.org.

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APPENDIX

Research Studies That Include SNAP, WIC Enrollment in Food Insecurity Intervention						
Author	Setting	Participants (n)	Purpose	Methods/Intervention	Screening Tool/Referral Type	Relevant Outcomes
Morales et. al., 2016[71]	Community health center	1,925 pregnant women who visited obstetrics clinic; 145 were referred; 97 enrolled in Food for Families	Determine if participation in Food for Families program would be associated with better blood pressure and blood glucose levels trends during pregnancy.	Retrospective analysis of women who visited the health center from 2013–2015. Patients who were referred to Food for Families were assisted with SNAP and WIC enrollment, if eligible. Questions related to SNAP and WIC were regarding eligibility and enrollment, respectively.	Unknown screening; provider referral Active Referral	Food for Families participation was associated with better blood pressure trends in pregnant women, but on difference in blood glucose trends. Food insecurity reduction may improve cardiovascular health for vulnerable pregnant women. 49% had Medicaid insurance; 43% were eligible for SNAP; and 87% were enrolled in WIC.
Smith et. al. 2016[72]	Clinic	430 food-insecure clinic patients	Implement a food insecurity screening and referral program in Student-run Free Clinics (SRFC) and to document the prevalence of food insecurity screening in this low-income patient population.	A food insecurity registry and referral tracking system to monitor food pantry and SNAP enrollment.	USDA Six-item Active Referral	201 patients with diabetes received monthly boxes; 66 used an off-site food pantry; 64 enrolled in the Supplemental Nutrition Assistance Program (SNAP).
Bottina, Rhodes, Kreatsoulas, Cox, &	Pediatric Primary Care	340 caregivers of 3- to 10-year-old	Describe a clinical approach for food insecurity screening incorporating a menu	Caregivers completed a self-administered questionnaire, USDA Six-Item Short Form,	USDA Six-Item	Caregivers who selected one or more referrals had greater odds of food insecurity compared to

Fleeger, 2017[73]		children completed the survey	offering food assistance referrals, and examine relationships between food insecurity and referral selection.	and a referral menu offering assistance with: (1) finding a food pantry, (2) getting hot meals, (3) applying for SNAP, and (4) applying for WIC. Printed referral sheet with service provided, hours of operation, contact information, and language spoken.	Passive Referral	caregivers who selected no referrals. Offering referrals may be a helpful adjunct to standard screening for eliciting family preferences and identifying unmet social needs. Of the 340 caregivers, 106 reported food insecurity and 107 selected one or more referrals for food assistance. 49 caregivers reported food insecurity but selected no referrals; 50 caregivers selected one or more referrals but did not report food insecurity; and 57 caregivers both reported food insecurity and selected one or more referrals. The most frequently selected referral was "finding a food pantry," followed by "applying for SNAP benefits," followed by "applying for WIC or help with the WIC office," followed by "getting hot meals".
Berkowitz, Hulberg, Standish, Reznor, & Atlas, 2017[74]	Three academic primary care practices	Patients Of 5,125 people screened, 1,021	Determine the effectiveness of the HL program on improvement in blood pressure,	Evaluation of HL program consisted of screening for unmet needs at clinic visits, and offering those who screen positive to meet	Unknown Active Referral	Screening for and attempting to address unmet basic resource needs in primary care was associated with modest improvements in blood

		enrolled in Health Leads.	cholesterol, hemoglobin A1c.	with an "advocate" to help obtain resources (assisted with SNAP enrollment), or receive brief transfer of information. Advocate would work with the participant until they were enrolled and benefits were available on an Electronic Benefit Transfer card.		pressure and lipid, but not blood glucose, levels. The most commonly reported needs were in the areas of health care, including medication affordability, utilities, and food. Connection to food resources, such as enrollment in SNAP or receipt of food from a food pantry, while effective for improving food insecurity, may not support the changes in dietary quality necessary to improve HbA1c.
Martel, Klein, Hager, & Cutts, 2017[75]	Hospital/ED	Hospital patients (n=1,519)	Implement an EMR method for screening and intervening patients and providing food resources through a partnership with food bank; focused education.	Retrospective observational study describing food bank referral patterns before and after implementation dedicated emergency department education on the novel EMR order for food resources.	HVS Active Referral	After education regarding the EMR referral, 74% were contacted by food bank and 63% accepted and received assistance. 34% increase with education. 508 were already receiving SNAP; 338 completed SNAP applications — 99 were ineligible and 9 were not interested in applying.
Lundeen et. al., 2017[76]	Health care	22 health care entities	Address food insecurity by identify health care entities screening and intervening.	Screen and provide food resources (include referrals to or a list of food resources)	Not specified Active and Passive Referrals	19 refer to community resource; 14 assisted with federal benefits application (Medicaid, Medicare, WIC, SNAP).

Smith, Malinak, Chang,Schultz, & Brownell, 2017[77]	Three family medicine residency programs	85 Residents	Study was conducted to determine if education regarding food insecurity as a health issue could modify knowledge, attitudes, and clinical behavior.	1,600 patients were screened for food insecurity because of systems-based changes. Different clinics shared different referral methods to local food pantries. One was an automatic referral generated to CalFresh.	USDA Six-Item Active Referral	Most had never or rarely referred their patients to a food bank (63/85; 74.1%) or to Supplemental Nutritional Assistance Program (SNAP, [64/85; 75.3%]), which is referred to as CalFresh in California (formerly known as food stamps).
Palakshappa, et. al., 2017[78]	Pediatric practices	Parents of children <4 years of age (n= 23) were interviewed	Gain a greater understanding of parents experience of food insecurity in suburban settings to effectively screen and address food insecurity in suburban practices.	Referred to community partner to help with SNAP/WIC application.	HVS Active Referral	15 consented to community partner for resources; 8 declined. 4 enrolled in SNAP; 4 enrolled in WIC; 10 received SNAP and WIC; 5 not receiving either.
Chan & Rosenblum, 2018[79](*Poster session)	Clinic	Patients at New York Presbyterian Hospital, Resident Clinic	1. Increase screening rate of household food insecurity to 50%. 2. Increase referral rate to WIC/SNAP for patients who screen positive to 90%. 3. Maintain infant and toddler autism screening using the	Cycle 1: Set up 2 questions in EMR and posted flyers in the exam rooms Cycle 2: Printed referral handouts (WIC/SNAP) and made them readily available Cycle 3: Group email reminders were sent, and feedback was given to the team.	HVS Passive Referral	Food insecurity screening rate improved from 0 to an average of 57% over 6 months, and 100% were referred. Although screening goals were met, results showed that 64.2% of patients screened were already connected to community resources (WIC, SNAP, or both).

			Modified Checklist for Autism in Toddlers (MCHAT) as a balancing measure.			Residents improved food insecurity screening rates and achieved outcome goals of 100% referral to WIC and SNAP.
Marpadga et. al., 2019[80]	Diabetes Clinic	Clinic patients — 240 screened, 143 were food insecure, 31 were interviewed	To evaluate the implementation of a tailored community food resource referral.	Patients who screened positive were offered individually tailored, written and verbal information about community food resources, including SNAP and programs offering free groceries, on-site prepared meals. Phone interviews with food-insecure participants (conducted 1 to 4 weeks after the referral).	HVS Passive Referral	Prevalence of food insecurity was high (60%). Provisions of written and verbal information alone about community resources resulted in low linkage (0–4%) even with individually tailored referrals. Personnel-guided, in-clinic enrollment to food resource resulted in a higher connection rate (31%). Major barriers to use were misperceptions about eligibility, fears around government program registration, inaccessibility, lack of information retention, competing priorities, in ability to cook, stigma, and a perceived sense of stability, with existing food support.
Hickey, Phan, Beck, Burkhardt,	Pediatric, primary care	Clinic patients	Provide supplemental emergency food supply; connect	Many families who accessed the pantry were linked to in-clinic and	Families who either self-	There were 267 referrals to social work, 207 to the medical-

& Klein, 2020[81]			patients to community resources.	community resources, based on their disclosed reasons for food insecurity and social needs.	disclosed food insecurity and/or who were identified by clinic staff as needing an emergency food supply. Active Referral	legal partnerships, and 72 to mental health services. Themes that emerged during interviews included the need for an emergency food source, facilitation of referrals, and increased trust in the clinic.
Okafor, Sarah Chiu, & Feinn, 2020[82]	Federally Qualified Health Center	534 patients; also conducted a focus group with pediatricians	Assess the prevalence of households at risk for food insecurity using the two-item screening tool and to identify the challenges associated with universal screening in clinics with recommended solutions by American Academy of Pediatrics (AAP).	Once patients are identified as being at risk for food insecurity, they are referred to food assistance programs such as SNAP, WIC, and free food programs for school-age children and for seniors. Example provided: Get Connected cards provided by City of New Haven. *One of the residency programs program on-site SNAP application assistance.	HVS Active & Passive Referral Processes	No quantitative data on SNAP/WIC referrals. Identified barriers to universal screening for food insecurity include lack of efficient methods to direct food-insecure patients to resources and continued stigma regarding food insecurity. Respondents already receive SNAP benefits or visit food pantries.

Fritz et. al., 2020[83]	Hospitals	Patients	1. Describe utilization of referral and supplemental resources. 2. Identify characteristics associated with utilization.	Linked hospital screening and Electronic Medical Record data to Hunger Free Colorado (HFC) referral data for patients 0 to 18 years who were screened in the emergency department (ED), inpatient, or outpatient setting from January 2017 to December 2018. Referral form is faxed to Hunger Free California and the organization makes 3 attempts to contact the family by phone. Upon reaching a family, English- and Spanish-speaking HFC staff provide families with navigation of federal food programs (i.e., SNAP, WIC) for eligible families and provide information for emergency food resources (food pantries, etc.).	HVS Active Referral	Of 1,952 patients with food insecurity, 371 (19%) accepted a referral to HFC and of these 227 (61%) were connected to a supplemental food resource. From the 227, 26 connected to SNAP, 168 referred to a community resource, 33 people were connected to both SNAP and a community resource.

Kaiser Permanente; Center for Law and Policy Innovation of Harvard Law School, 2021[84] (*not a research study)	Kaiser Permanente patients	Patients enrolled in Supplemental Security Income (SSI), Medi-Cal, or newly eligible Medicare or Commercial members.	Increase SNAP enrollment.	Text-message based outreach to encourage SNAP enrollment.	Unknown Passive Referral	Nearly 35,000 households, with more than 82,000 members, have applied for SNAP benefits.
Blitstein et. al, 2021[85]	22 Federally Qualified Health Centers	933 patients with diabetes	Examine a clinic-based approach to improve food security and glycemic control among patients with diabetes.	Integrated social medicine approach that includes food insecurity screening, nutrition education, and assistance accessing food resources as a standard-of-care practice designed to minimize disruptions in how patients and providers experience medical care. Benefits specialists at the health centers provide enrollment assistance to patients who are financially qualified for SNAP.	USDA Six-Item Active Referral	There was a decrease in mean HbA1c over the study period. Food secure participants exhibited significantly greater levels of improvement in blood glucose than food insecure. Participants not receiving SNAP returned to the health center for a follow-up visit at 6 to 9 months more often than participants receiving SNAP.
Carpenter. Kuchera, & Krall, 2022[86]	Pediatric clinic	27 Pediatric clinic	To assess the feasibility of a clinical-community direct referral model	Pediatric clinics screening for food insecurity invited families experiencing	HVS Active Referral	A total of 486 families were referred to the community partner; 135 (28%) unable to be reached. 72% (n = 351) were

		patients (n=486)	to enroll eligible house- holds in the Supplemental Nutrition Assistance Program (SNAP).	food insecurity to participate in a direct referral to a local organization that assists with SNAP applications. A food stamp specialist telephoned participants to determine SNAP eligibility, assist with the application, and/or provide other supports. Referrals, eligibility determination, enrollment, and estimated benefits were tracked.		successfully contacted by a food stamp specialist, with 17% (n = 83) applying for SNAP benefits. Another 16% (n = 79) were already enrolled in SNAP but received an additional service. 39 (8%) were approved for SNAP.
Kelly, Maytag, Allen, & Ross, 2022[87]	Clinics	Clinic patients — 15,296 individuals were screened for food insecurity and 5,724 (37%) reported food insecurity.	Evaluation to assess the proportion of individuals, CBOs and clinics screen for food insecurity and assist with completing a SNAP application and describe the characteristics of individuals who are not interested in receiving assistance to complete a SNAP application and the characteristics of individuals who enroll in SNAP.	Funded CBOs and clinics were asked to submit deidentified individual-level data to the evaluation team (number and characteristics of individuals screened, screening results, interest in receiving assistance, submitted application, enrolled in SNAP). Referral to food bank.	HVS Active Referral	In the overall sample, 551 individuals (10%) who reported food insecurity enrolled in SNAP after engaging in at least one step of the care cascade. 35 percent of individuals who reported food insecurity participated in the care cascade and enrolled in SNAP. CBOs assisted a greater proportion of food-insecure individuals (55%) than clinics (22%). Males, adults 40 years or older, rural residents, and African Americans were more likely to be interested in receiving assistance, and adults

						40 years or older, rural residents, and American Indians/Alaska Natives were more likely to enroll in SNAP.
Hanna, et. al., 2022[88]	Hospitals	4,777 patients with food insecurity screen completed.	Describe an advocacy effort to implement a food insecurity screening during hospital admission and describe characteristics of hospitalized patients with household food insecurity.	Descriptive study after the implementation of food insecurity screening at a quaternary-care children's hospital in the Southeastern United States between August 2020 and April 2021. A positive screen triggered a social work consult to connect patients with resources. Interventions for FI included providing the family with meal tickets to obtain food from the hospital cafeteria during the hospitalization, providing local food bank information for the patient's county of residence, and providing information on enrollment to SNAP and WIC Program if the family was not already enrolled.	HVS Passive Referral	Social work documented care specific to food insecurity in 125 of the 233 (56%) food-insecure patients, of which 39 (31%) were not enrolled in the WIC/SNAP.

Monroe et. al., 2023[89]	Pediatric primary care clinic (majority Medicaid insured)	1171 patients (<5 years of age at well child visit)	To understand factors influencing WIC engagement and improve WIC enrollment through novel, primary care-based quality improvement interventions.	Universal WIC screening at <5-year-old well-child visits was initiated, with counseling and referrals (via EHR) offered to nonparticipants; resource pamphlet was also provided.	Universal WIC Screening Active Referral	The implementation of WIC screening, family and provider education, and referrals was associated with increased WIC enrollment. Provider WIC knowledge increased. WIC screening, counseling, and referral rates remained robust for >1 year after interventions. Study identified several predictors of lower WIC participation, the most robust being older child age and non-Medicaid insurance status, with weaker effects seen for "Other" race/ethnicity and higher growth percentiles.

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